

CLAIMS

- 1 1. A method for providing information and services of a collaboration system that
2 allows a plurality of members to interact collaboratively in a shared folder in a
3 folder-based file system that is part of an operating system with a user interface,
4 comprising:
 - 5 (a) including a collaborative interface in the operating system user interface;
 - 6 (b) using the collaborative interface to display information regarding the
7 members collaborating within the context of a shared folder, through the
8 use of the collaborative system;
 - 9 (c) determining changes made in the folder-based file system; and
 - 10 (d) communicating the changes to other members via the collaborative
11 system.
- 1 2. The method of claim 1 wherein step (a) comprises designing and implementing a
2 portion of the user interface as the collaborative interface.
- 1 3. The method of claim 1 wherein step (a) comprises enhancing the user interface
2 to include the collaborative interface.
- 1 4. The method of claim 1 wherein step (a) comprises replacing a portion of the user
2 interface with the collaborative interface.
- 1 5. The method of claim 1 wherein step (b) comprises using the collaborative
2 interface to create a shared space underlying the operating system shared folder
3 within which collaboration will occur.

- 1 6. The method of claim 5 wherein step (b) further comprises using the collaborative
2 interface to invite one of the plurality of members to join the shared space.
- 1 7. The method of claim 5 wherein step (b) comprises displaying information
2 regarding members in the shared space.
- 1 8. The method of claim 7 wherein the information regarding members in the shared
2 space includes awareness information that indicates whether each member is
3 on-line and available.
- 1 9. The method of claim 1 wherein step (c) comprises, for each synchronized file in
2 the folder-based file system, maintaining a snapshot that contains sufficient
3 information to allow a determination to be made whether that file has changed.
- 1 10. The method of claim 9 wherein step (c) further comprises receiving a notification
2 from the folder-based file system that changes have been made to the folder-
3 based file system and in response to the notification, examining each file
4 snapshot to determine which file has changed.
- 1 11. The method of claim 1 wherein step (c) comprises connecting to the collaborative
2 system via a web services interface.
- 1 12. The method of claim 1 wherein step (d) comprises maintaining a list of members
2 who are in the shared folder.
- 1 13. The method of claim 12 wherein step (d) further comprises for each member who
2 is in the shared folder, maintaining information indicating whether that member
3 has contents of each synchronized file in the shared folder.

- 1 14. The method of claim 13 further comprising providing a stub file to each shared
2 folder member who does not have the contents of a synchronized file.
- 1 15. The method of claim 14 further comprising displaying the stub file in the user
2 interface.
- 1 16. The method of claim 15 further comprising downloading file contents from a
2 source when a user selects the stub file display.
- 1 17. The method of claim 16 wherein the source comprises a server.
- 1 18. The method of claim 16 wherein the source comprises a computer of another
2 member.
- 1 19. The method of claim 1 further comprising using the collaborative system to
2 disseminate file changes to members in the shared folder.
- 1 20. The method of claim 19 wherein the file changes are disseminated only as
2 compressed representations of such changes, such as binary differences, rather
3 than the entire file contents.
- 1 21. The method of claim 1 wherein step (b) comprises using the collaborative
2 interface to create a shared space underlying the operating system shared folder
3 within which collaboration will occur and wherein the method further comprises:
4 (e) forwarding a change made in the shared space to a file to a document
5 share engine in the shared space; and

- 6 (f) using the document share engine to make the file change to a
7 corresponding file in the folder-based file system.
- 1 22. The method of claim 21 wherein step (f) comprises using a file synchronizer in
2 the collaborative system that makes the change in the folder based file system
3 under control of the document share engine.
- 1 23. The method of claim 21 further comprising:
2 (g) using the document share engine to notify each of the plurality of
3 members that a file change has occurred.
- 1 24. The method of claim 21 further comprising:
2 (h) using the document share engine to display in the collaborative interface a
3 list of the plurality of members and an indicator showing which of the
4 plurality of members has opened a selected synchronized file.
- 1 25. The method of claim 1 wherein the collaborative interface comprises an on-line
2 chat mechanism.
- 1 26. The method of claim 1 wherein the collaborative interface comprises a
2 mechanism for creating and storing comments related to a selected file.
- 1 27. Apparatus for providing information and services of a collaboration system that
2 allows a plurality of members to interact collaboratively in a shared folder in a
3 folder-based file system that is part of an operating system with a user interface,
4 comprising:
5 means for including a collaborative interface in the user interface;

6 an interface that connects the collaborative interface to the collaboration
7 system in order to retrieve and display information regarding the members in the
8 user interface;

9 a file synchronizer that determines a change made in the folder-based file
10 system; and

11 a document share engine that communicates the change to the
12 collaborative system.

1 28. The apparatus of claim 27 wherein the means for including the collaborative
2 interface comprises means for designing and implementing a portion of the user
3 interface as the collaborative interface.

1 29. The apparatus of claim 27 wherein the means for including the collaborative
2 interface comprises means for enhancing the user interface to include the
3 collaborative interface.

1 30. The apparatus of claim 27 wherein the means for including the collaborative
2 interface comprises means for replacing a portion of the user interface with an
3 interface specifically intended to support collaborative activity.

1 31. The apparatus of claim 27 wherein the interface comprises a web services
2 interface that allows the collaborative interface to interact with the collaboration
3 system to create a shared space.

1 32. The apparatus of claim 31 wherein the interface further comprises a web
2 services interface that allows the collaborative interface to interact with the
3 collaboration system to invite one of the plurality of members to join the shared
4 space.

- 1 33. The apparatus of claim 32 wherein the collaborative interface comprises means
2 for displaying information regarding members in the shared space.
- 1 34. The apparatus of claim 33 wherein the information regarding members in the
2 shared space includes awareness information that indicates whether each
3 member is on-line and available.
- 1 35. The apparatus of claim 27 wherein the file synchronizer comprises means for
2 maintaining for each synchronized file in the folder-based file system a snapshot
3 that contains sufficient information to allow a determination to be made whether
4 that file has changed.
- 1 36. The apparatus of claim 35 wherein the file synchronizer further comprises a file
2 RAMP that receives a notification from the folder-based file system that changes
3 have been made to the folder-based file system and means responsive to the
4 notification for examining each file snapshot to determine which file has changed.
- 1 37. The apparatus of claim 27 wherein the file synchronizer comprises a web
2 services interface that connects to the collaboration system.
- 1 38. The apparatus of claim 27 wherein the interface comprises a web services
2 interface that allows the collaborative interface to interact with the collaboration
3 system to create a shared space and wherein the document share engine
4 comprises means for maintaining a list of members who are in the shared space.
- 1 39. The apparatus of claim 38 wherein the document share engine further comprises
2 means for maintaining for each member who is in the shared space information

- 3 indicating whether that member has contents of each synchronized file in the
4 shared space.
- 1 40. The apparatus of claim 39 further comprising means for creating a stub file and
2 providing the stub file to each shared space member who does not have the
3 contents of a synchronized file.
- 1 41. The apparatus of claim 40 further comprising means for displaying the stub file in
2 the user interface.
- 1 42. The apparatus of claim 41 further comprising means for downloading file
2 contents from a source when a user selects the stub file display.
- 1 43. The apparatus of claim 42 wherein the source comprises a server.
- 1 44. The apparatus of claim 42 wherein the source comprises a computer of another
2 member.
- 1 45. The apparatus of claim 27 wherein the document share engine comprises means
2 for determining changes in a file and means for providing that changes to the
3 collaboration system so that the changes are distributed to members in the
4 shared folder.
- 1 46. The apparatus of claim 45 wherein the document share engine provides the file
2 changes to the collaboration system as binary differences.
- 1 47. The apparatus of claim 27 wherein the interface comprises a web services
2 interface that allows the collaborative interface to interact with the collaboration

3 system to create a shared space and wherein the document share engine is
4 located in the shared space and the document share engine further comprises
5 means for receiving a change made in the shared space to a file; and means for
6 communicating the change to the file synchronizer.

1 48. The apparatus of claim 47 wherein the file synchronizer comprises means for
2 making the change in the folder based file system.

1 49. The apparatus of claim 47 wherein the document share engine comprises means
2 for notifying each of the plurality of members that a file change has occurred.

1 50. The apparatus of claim 47 further comprising means cooperating with the
2 document share engine and comprising means for displaying in the collaborative
3 interface a list of the plurality of members and an indicator showing which of the
4 plurality of members has opened a selected synchronized file.

1 51. The apparatus of claim 27 further comprising an on-line chat mechanism in the
2 document share engine controlled by the collaborative interface.

1 52. The apparatus of claim 27 further comprises means controlled by the
2 collaborative interface for creating and storing comments related to a selected
3 file.

1 53. A computer program product for providing information and services of a
2 collaboration system that allows a plurality of members to interact collaboratively
3 in a shared folder in a folder-based file system that is part of an operating system
4 with a user interface, the computer program product comprising a computer
5 usable medium having computer readable program code thereon, including:

6 program code for including a collaborative interface in the user interface;
7 program code for using the collaborative interface to display information
8 regarding the members collaborating within the context of the shared folder,
9 through the use of the collaborative system;
10 program code for determining a change made in the folder-based file
11 system; and
12 program code for communicating the changes to other members via the
13 collaborative system.

1 54. A computer data signal embodied in a carrier wave for providing information and
2 services of a collaboration system that allows a plurality of members to interact
3 collaboratively in a shared folder in a folder-based file system that is part of an
4 operating system with a user interface, the computer data signal comprising:
5 program code for including a collaborative interface in the user interface;
6 program code for using the collaborative interface to display information
7 regarding the members collaborating within the context of the shared folder,
8 through the use of the collaborative system;
9 program code for determining a change made in the folder-based file
10 system; and
11 program code for communicating the changes to other members via the
12 collaborative system.